

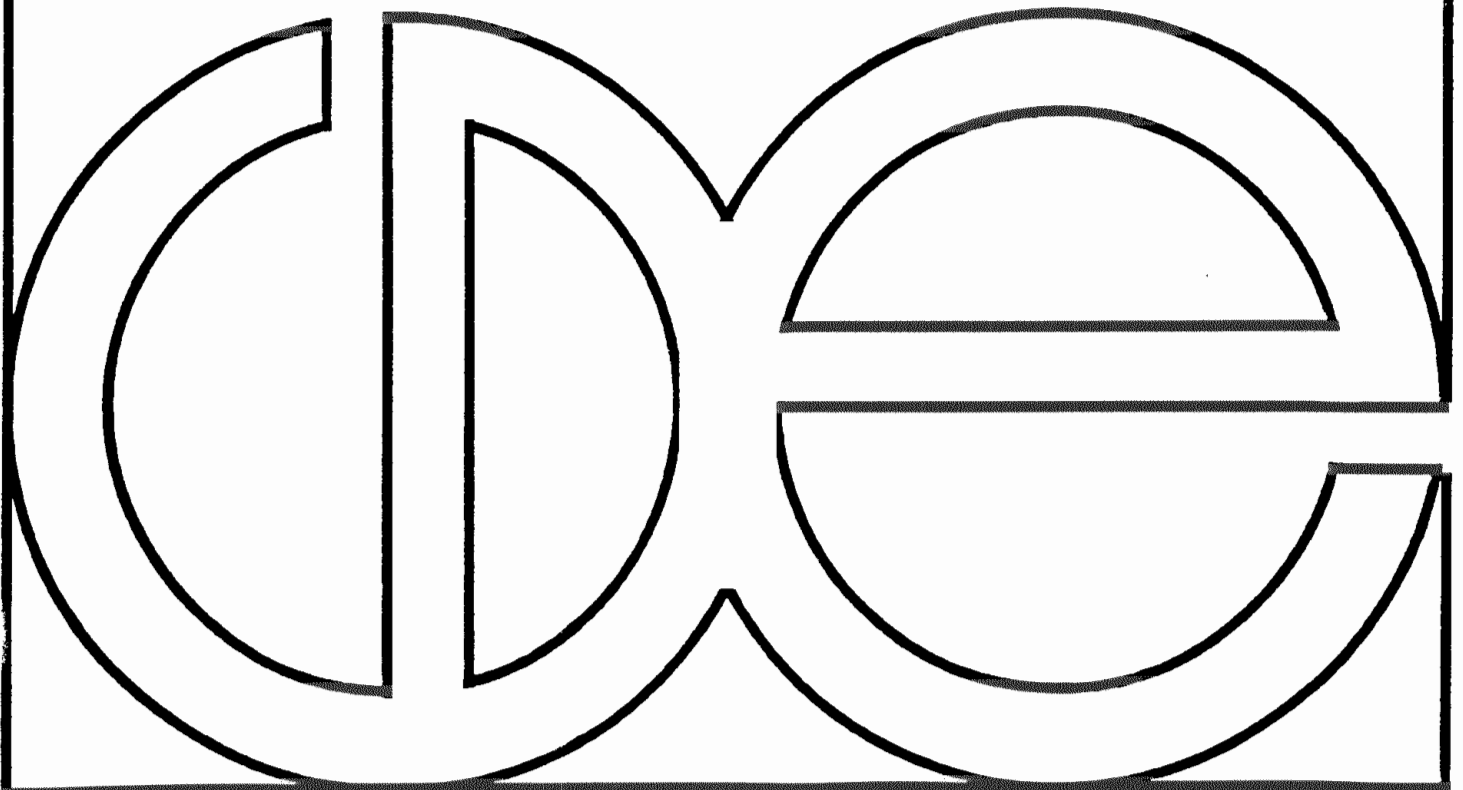
Center for Demography and Ecology

University of Wisconsin-Madison

**From Paradigm to Prototype and Back Again:
Interactive Aspects of "Cognitive Processing"
in Standardized Survey Interviews**

Nora Cate Schaeffer
Douglas W. Maynard

CDE Working Paper No. 94-17



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Nora Cate Schaeffer
University of Wisconsin--Madison

Douglas W. Maynard
Indiana University

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Recent research about how respondents formulate and report answers to survey questions has drawn heavily and fruitfully on social-information-processing models of the question-and-answer process (Hippler, Schwarz, and Sudman, 1987). These approaches commonly use one of several variants of a four-stage model of the process in which the respondent interprets the question, retrieves the requested information, evaluates the information for the purposes of reporting it, and finally maps his or her answer onto the response categories and reports an answer (see Tourangeau, 1984, also Cannell et al., 1981). Such models focus on cognitive processing as an internal psychological process. Approaches to improving question design that use the cognitive interviewing techniques of paraphrasing and "think-alouds" to study comprehension and information retrieval draw on such models and seek to reveal the processing respondents perform that would otherwise remain invisible (for examples, see Jabine et al., 1984 and DeMaio et al., 1993).

A complementary approach to obtaining evidence of respondents' cognitive processes considers interactional aspects of the survey interview in a particular way. Drawing on descriptions of the norms governing conversation (Grice, 1975), Schwarz and others (see review in Schwarz, 1994) examine how the effects of question order can be predicted and explained: respondents appear to use the sequence of questions as informative, and design their answers to be relevant, to provide new information, and so on. Such effects of the order of questions provide indications of

respondents' cognitive processing and indirectly illustrate the influence of conversational norms--a particular set of social practices--on mental processes. In this research, the respondent is seen as "interacting with" or "reacting to" the wording of the survey questions, but the interviewer is not present,¹ or is at best a neutral conduit of the questions. (See Schwarz and Sudman, 1992 for recent examples; Strack and Schwarz 1992 for a discussion of "implicit collaboration" between the interviewer and respondent in self-administered questionnaires; and Sander, Conrad, Mullin, and Herrmann 1992 for a more comprehensive model.)

In this paper we examine the interaction between the interviewer and respondent more directly and so take a different view of cognition. In the *paradigmatic*, and probably most common, interactional sequence in standardized survey interviewing, an interviewer asks a question as written and a respondent answers in the format requested. We call such a sequence paradigmatic because it is the ideal sequence from the standpoint of survey design. Such sequences suggest that the stages of cognitive processing required to produce an answer occur "inside the respondent's head."

But the process of cognition may not be so individualistic. Consider the first stage in the information-processing model, the respondent's act of interpreting the question. To understand the "point" of any question, a respondent must understand

¹In addition to their uses for studying cognitive processes, both cognitive interviewing and split-ballot experiments have been used for evaluating survey questions. Another method for evaluating survey questions, behavior coding of pretests of standardized interviews, may also provide indirect evidence of respondents' cognitive processes (see @Fowler and Cannell, this volume). Behavior coding has also been conducted on cognitive interviews (e.g., Blixt and Dykema, 1993).

at least two things: the type of information that constitutes an adequate answer and the form in which he or she should provide that information. How does the respondent come to know and understand these two matters? When the interaction between the interviewer and respondent goes beyond simply reading a question and quickly producing an answer, the interaction may give clues about the requirements for such knowledge and understanding. Indeed, interviews in which there are "deviations" from the standardized script and the paradigmatic question-answer sequences make visible the ways in which answering a question--and the cognitive processing it requires--can be fundamentally interactive and collaborative rather than a respondent's own problem. Therefore, in the Conclusion, we address assumptions about what *is* paradigmatic and what is deviation with regard to interaction in the survey interview. We propose that the *prototypical* question-answer sequence involves an organized set of activities in which the contribution of the interviewer goes beyond merely reading questions; many times the actions of the interviewer form an integral part of a respondent's cognition and answering.

Interaction in the interview, like think-aloud protocols and question-order effects, cannot provide a window to the internal cognitive processes of participants. But our analysis challenges "the assumption that cognition is exclusively an individual act, clearly distinguishable from external social processes that may influence it" (Levine, Resnick, and Higgins, 1993, p. 588). Our approach locates the immediate site of joint cognition in the interaction between interviewer and respondent and in the way parties exhibit the "interactional substrate" of standardized interviewing (Maynard and Marlaire, 1992). The interactional substrate refers to participants' skills at maintaining social and cognitive coordination to arrive at "accountable" answers,

answers that are adequate and properly achieved according to the canons of standardized interviewing. In part, our analysis counters the "individualistic" and "psychologistic" cast of social science, where the tradition has been to "... study cognition in the splendid isolation of the individual mind or brain" (Schegloff, 1991, p. 168). Our analysis locates *social* components of cognition and demonstrates how the structure of concerted participation in the interview, including the behavior of interviewers, radically enters into the cognitive processes researchers often assign to the respondent as a solitary actor.² We also suggest implications our analysis has for improving the design of survey questions.

The Analysis and Data

The interviewer's behavior in survey interviews is constrained by the rules of standardized interviewing, which are requirements of the interviewer's role. Several of those constraints are particularly relevant to this analysis: to read the question as worded, to obtain an answer that can be seen to be produced by the respondent and not the interviewer (compare Button, 1987), to probe nondirectively, and to maintain a cooperative relationship for the duration of the interview (see, for example, Brenner, 1985; Fowler and Mangione, 1990). Proper standardization sometimes requires the interviewer to ask a question with an "obvious" answer--an answer that uses information the respondent has already volunteered or that seems to be a reasonable inference from previous answers. Repeatedly asking such "obvious" questions may

²This ignoring of the contribution of the interviewer to cognitive processing in the interview stands in contrast to a long tradition of studying interviewer effects (see, for an early example, Hyman 1975[1954]).

make the interviewer seem inattentive or socially inept, and so threaten her cooperative relationship with the respondent. To help mitigate such role conflict, Census Bureau interviewers can use a practice called "verification." In this procedure, an interviewer verifies both that she has correctly heard and remembered information already provided by a respondent and that the information is the correct answer to the question. For example, if a respondent has already mentioned her age, the interviewer could, instead of asking a question about age, say something like, "I think you said you are 24 years old. Is that the age I should record for you?" or "How old were you on your last birthday? I think you said you were 24. Is that correct?" The situations in which a verification might be useful and appropriate are highly varied, and the techniques interviewers use for verifications are similarly diverse. Although we have not studied them closely, it seems that most verifications are constructed both to show that the interviewer has "heard" the respondent and to show that the answer is the respondent's own. In listening to actual interviews, however, it is sometimes difficult to determine whether the interviewer has changed the wording of a question as part of an acceptable verification or for some other reason that may have less justification under the rules of standardization.

Standardized survey questions also constrain acceptable answers (compare Fowler and Mangione, 1990; Suchman and Jordan, 1990). Questions may be designed and formatted to obtain a "yes" or "no" answer, a specific number or piece of information, one of a set of response categories, or a relatively free-form description (see Dohrenwend, 1965). Accordingly, there are different question-answer "idioms" (Marlaire and Maynard, 1990), which are probably familiar to most survey respondents from other interactional contexts. To hold some features of

question structure constant in this analysis, we study just one survey item that presents the respondent with a complex set of categories to choose among. In this question, the respondent is asked to report about herself and to give proxy reports for other members of the household.

Our analysis presumes, but does not analyze in detail, the basic three-part structure of the question-answer-receipt sequence (see Cannell and Kahn, 1968, p. 572; for parallels see Mehan, 1979, pp. 52-53 and Marlaire and Maynard, 1990, p. 89). Often, in survey interviews--as in the testing sequences Marlaire and Maynard (1990) studied--the receipt is followed by a silence. During the receipt and this silence, the interviewer is engaged in recording one answer and preparing to ask the next question.

The data are provided by audiotapes of 24 Computer Assisted Telephone Interviews (CATI) by U.S. Bureau of the Census interviewers for a test of redesigned questions about labor force participation in the Current Population Survey. The information available to us on the audiotapes approximates that available jointly to participants speaking on the telephone. The tapes were not screened or selected using any criteria; they constitute a haphazard collection of interviews. The tapes include only the portion of the interview concerned with labor force participation, and four different versions of the labor force participation questions appear on the tapes. Although the interviewer's identification number is not recorded for all interviews, it appears that there are 2 pairs of interviews in which the same interviewer conducted both interviews.

Conversation analysis provides a theory about how interactional sequencing makes utterances and associated interactional objects understandable (Heritage,

1984; Maynard and Clayman, 1991). Conversation analysis also offers a body of prior research and methodological procedures that enable systematic, close examination of interactional detail in the interview. Such examination permits identifying conversational practices--elements of the interactional substrate--that persist in the relatively constrained environment of the standardized interview. More generally, analysis of these practices shows how the organization of interaction enters into the production of social science data (Maynard, Schaeffer, and Cradock, 1993; Schaeffer, 1991).

The Question as it is to be Read: Paradigmatic Sequences

Our analysis concerns the relatively simple question in Figure 1, which shows the question as it appears on the interviewer's screen. This question is intended to elicit a choice among the four categories. (The notation "[blind]" means that the categories are available for the interviewer to use but do not appear on the screen.)

Figure 1

Test CPS, Versions C and D, Q25B-2

Is this business or organization mainly manufacturing,
retail trade, wholesale trade, or something else?

Manufacturing
Retail Trade
Wholesale Trade
Something else

[blind] Don't know

[blind] Refused

In the terms used by the social-information-processing model described above, the principal cognitive difficulties posed by this question appear to involve interpreting the question and mapping an answer onto the response categories. If the respondent has relevant information, retrieving it and deciding whether or not to report it would appear to be relatively straightforward. Our analysis focuses on the potentially ambiguous category, "something else," which can be heard in at least two possible ways, as the excerpts from the interviews below will illustrate. There are eight instances of this question in our tape recordings in which the category "something else" appears to be the answer that is sought.³ These eight instances account for half of the 16 occasions when this question was asked (or should have been asked) in nine different interviews.⁴

Segment 1⁵ represents an administration of this question that approaches what we

³In the other instances the respondent chooses another category (4 times), the interviewer verifies with another category (2 times), or the interviewer does not ask the question and appears to code another category (probably "retail") based on information already provided by the respondent (2 times). There is no interaction around the category "something else" in any of these cases, except that the interviewer omits reading it in one of the instances in which the respondent chooses "retail."

⁴The question was asked twice in each of four interviews and four times in one interview. When the question is asked multiple times in a single interview, one administration asks about the respondent and the other administrations ask for proxy reports about the jobs of other members of the household. In some situations the question was not asked when it should have been; the interviewer probably filled in the answer based on information previously provided by the respondent.

⁵The transcripts use the following notation: MR indicates a male respondent and FR a female respondent, parentheses around spoken material indicate that it was spoken softly, equals signs indicate that speakers' utterances are linked, square brackets indicate material overlapping speech, a colon indicates that a sound is drawn out, ".h" indicates an audible inbreath, and "(.)" indicates a pause with each "." indicating about a tenth of a second. Timed pauses (in seconds) are shown between turns in parentheses between turns. Question numbers from the CPS instrument appear in curly brackets. The transcripts show material immediately preceding the question of interest to illustrate the kind of information already available to the interviewer. The line numbers are from the transcript of the entire audiotaped segment.

call paradigmatic standardized interviewing: the interviewer reads the question (lines 72-74) as it appears on the screen and the respondent chooses one of the four response categories, "something else," with minimal hesitation (line 76), whereupon the interviewer "receipts" and records the answer (line 75) and then moves on to the next question (lines 77-78).

Segment 1

Interview 024c, Version D

62 IV: Sam and friends?
63 MR: Yes ma'am
64 (2.0) ((typing))
65 IV: .hh what kind of business or industry is it. {q25B}
66 MR: Uh beautician
67 (3.8)
68 IV: .hh Alright and the place where she at she's uh at Is
69 this a beauty shop? or a beauty salon? or
70 MR: Uh:: Beauty salon
71 (2.1)
72 IV: .hhh Alright and is this business or organization mainly
73 manufa:cturing retail trade wholesale trade or something
74 else {q25B-2}
75 (1.3)
76 MR: Uh:: something el(h)se hh::
77 IV: heh hal::right .hhhH What kind of work does she
78 usually do at this job that is what is her occupation?

There is no evidence in the interaction of how the respondent comes to realize the type of information required and the form in which to report it. A similarly unremarkable administration of the question appears in one more of our eight cases (not shown).

Respondents' Solicitations of Interviewer Help

If Segment 1 accords with the ideal of standardized interviewing, Segment 2 shows a departure from the ideal because of the possible ambiguity of "something else" in the question.

Segment 2

Interview 007c, Version C

73 MR: Insurance Company
74 (13.0) ((typing))
75 IV: And what kind of business or industry is this? = {q25B}
76 MR: =the insurance industry
77 (7.0) ((typing))
78 IV: Is this business or organization mainly manufacturing
79 retail trade wholeta- wholesale trade or something
80 else? {q25B-2}

81 (1.0)
82 MR: It's a service industry
83 (1.8)
84 IV: So it'd be under::?
85 (2.0) ((3rd voice whispers "something else"))
86 MR: Well: it wouldn' - wouldn't be manufacturing or retail or
87 (0.9)
88 MR: or anything like that it's:
89 (0.7)
90 MR: I don't know how- I don't know what you'd (.) classify
91 it=
92 IV: =Under something else=
93 MR: =Yeah:
94 (1.0)
95 IV: And what kind of work do you usually do at this job that
96 is (.) what is your occupation. {q25C}

This segment illustrates how understanding the point of a question can be fundamentally interactive rather than a problem for the respondent alone. With two small errors in pronunciation, one of which she repairs, the interviewer reads the question accurately (lines 78-80). The respondent, after a slight delay (line 81), provides an answer, "It's a service industry" (line 82), which suggests that he heard "something else" as an indirect request to produce a category taxonomically consistent with the categories previously read (for a discussion of indirect requests, see Clark, 1979).⁶ However, the interviewer's probe ("So it'd be under::?," line 84) does not accept the answer, and asks for one that uses the categories rather than adding to them. Now the respondent delays for two seconds⁷ and then produces an extended turn of talk (line 86-91) that is not formatted as implicitly requested by the probe. The response reviews material from the interviewer's initial question ("manufacturing or retail trade," line 86) in the order in which it was originally presented and ends with a formulation of uncertainty (lines 88, 90-91). Although this response could exhibit

⁶As Sacks (1992, p. 726) has argued, the "position of an item on a list is relevant to hearing what that item is," which suggests a sequential basis for what Grimshaw (1980) identifies as "partial" understandings and "mishearings." For the way that sequencing can lend to misunderstandings, and even incorrect answers, in standardized testing, see Maynard and Marlaire (1992, p. 183).

⁷The voice at line 85 appears to be someone at the CATI telephone facility. Neither the interviewer nor respondent gives any indication that they have heard the voice.

cognitive processing—it could be a spontaneous retrospective think-aloud displaying how the respondent arrived at his original answer—it is fundamentally interactive. In sequential terms, the turn appears to solicit guidance or help.⁸ It invites the *interviewer* to produce a candidate answer; note how the interviewer (line 92) treats the respondent's utterance by proposing one of the original categories as a possible answer. The respondent's agreement ("Yeah," line 93) accepts the proposal and ends the verbal exchange.

In summary, Segment 2 shows how a respondent may treat "something else" as a request to produce a new category rather than as one of several categories from which to choose. As it is written, the category "something else" is potentially ambiguous, and this respondent's initial answer activates the ambiguity, although he has no way of knowing this. Clarifying the point of the question and the form the answer is to take requires coordinated activity by both parties. Thus, this segment also demonstrates how we can understand utterances-in-context as something other than evidence of such cognitive processes as "interpreting" the question. Rather, turns and their component utterances play fundamentally interactive roles such as soliciting help or guidance with answering a question. And, although the interviewer's probe at line 92 might be judged leading, she is using her knowledge of the

⁸Indeed, before the interviewer responds at line 92, the respondent "invites" the interviewer to talk at two other places. At line 86, the respondent names and rejects two items from the list of possible categories and then hesitates with "or" and the silence at line 87. This is a place where the interviewer could have offered the respondent some help in answering. After the interviewer passes this opportunity (line 88), the respondent "re-starts" (with another "or") a generalized third item ("or anything like that..."), which now appears (because of this re-start) as a third item on his list of rejected possible categories; and it is a generalized third item. According to Jefferson (1990, p. 79), such "weak" third parts (e.g., an item that is weakened by being generalized) can accomplish a variety of interactional tasks, one of which is to invite co-participation in assembling a list. In fact, this generalized third part may be a dispreferred alternative to what the interviewer might have been invited (at line 86) to produce as a specific third part. When, at line 89, the interviewer again passes the occasion to take a turn at talk, the respondent issues what we call his formulation of uncertainty. In the context of the two prior offered opportunities for the interviewer to talk and, more specifically, to help the respondent with his displayed difficulties, line 90 is a third and possibly *exacerbated* request for help.

structure of the question to respond to a strong solicitation by the respondent. Put differently, actual talk and its related non-vocal content (such as silence) may exhibit something more fundamental than an answering party's cognitive processing. Such fundamental interactive phenomena reflect intricate coordination between the interviewer and respondent in yielding a codable answer.

Our next excerpt, Segment 3, shows another example of the respondent soliciting the interviewer's help in answering the question. After verifying that "Certi-Cleaner" is a janitorial service (lines 243-246), the interviewer reads question 25B-2 at lines 248-249. But she omits the category "manufacturing," providing a possible example of how interviewers use information respondents have previously provided to modify question wording (Houtkoop, 1991). That is, the interviewer may have decided that a "janitorial service" would not be considered "manufacturing," and so does not read that category.

Segment 3

Interview 019c, Version C

243 FR: Certi-Cleaner of Bigelow
244 (6.2) ((typing))
245 IV: O::kay:: and you said this was a (.) janitorial service?
{q25B-1}
246 FR: Yes
247 (7.5) ((typing))
248 IV: Ohhkay (uh:) would this be considered (.) retail trade
249 whole(.)tale (.) trade or something else. {q25B-2}
250 (3.5)
251 FR: Well (.) Like I say it's just a janitorial service that
252 cleans (.) businesses
253 (0.5)
254 FR: [when they]'re closed
255 IV: [Uh Okay]
256 (3.0)
257 IV: O:::kay::
258 (1.2)
259 IV: And let's see what kinda work does he usually do at his
260 job .hh uh:: [(ju-)] {q25C}

After the question reading, the respondent hesitates, producing a long silence (line 250).

Previous research has treated response latency such as this as evidence that cognitive processing is taking place (Bassili, 19??). The respondent's next utterance (lines 251-254) is

not formatted as an answer to the question. This utterance may show that the respondent is having trouble understanding the point of the question and as such may display the respondent's "uncertainty." But this kind of answer can also be a deployment of "tentativeness" as an interactive resource (Schaeffer et al., 1993; cf. Marlaire and Maynard, 1990). Rather than selecting from among the offered categories, the respondent marks her utterance as a repeat ("Like I say," line 251) of the type of business in which her son is engaged ("janitorial service," line 251), adds one descriptor ("that cleans businesses" lines 251-2) and then, after a brief pause (line 253), another ("when they're closed").⁹

The respondent appears to be doing something akin to what Drew (1984) describes as "reporting" in invitation sequences. Reporting is a way of providing details relevant to answering an invitation without stating an acceptance or rejection, and it allows a co-participant to determine the "upshot" of the reporting. Analogously, the respondent here avoids answering the question with a category, but provides possibly relevant information the interviewer could use in selecting a proper category or deciding on the next question to ask. The three-second silence at line 256, the receipt at line 257, the next silence at line 258, plus the interviewer's proceeding to the next question (lines 259-260) all indicate that she does precisely this. That is, the silences, receipt, and moving on suggest that the interviewer herself has constructed a codable answer from the material provided by the respondent. In short, in a manner similar to that used by the respondent in Segment 2, the respondent here solicits the interviewer's help with answering, and the interviewer accedes to that solicitation.

⁹The interviewer appears to delay responding to the respondent's utterances at lines 251-252 long enough that the respondent begins to add to her utterance (line 254) in overlap with the interviewer's receipt (line 255).

Interviewers' Offers of Help for Answering Questions

We have seen that an interviewer's help can be solicited, but interviewers can also offer help. We examine below four instances of interviewers making increasingly strong offers of help. In these sequences, the help the interviewers offer may use information they have already obtained from a respondent:

Segment 4

Interview 018c, Version C

104 FR: The University of North Georgia
105 IV: Oka:y
106 (5.8) ((typing))
107 IV: ((tch)) An:d what kind of a business or industry is
108 this? {q25B}
109 FR: It's a
110 (0.3)
111 FR: college
112 (0.3)
113 FR: [uni]versity
114 IV: [(uh)]
115 IV: Okay
116 (4.0)
117 IV: And is this business or organization mainly
118 manufacturing retail trade wholesale trade or would you
119 (.) consider that something else {q25B-1}
120 FR: Something else=
121 IV: =I would too [heh heh heh]
122 FR: [hhhhhhh]
123 IV: .hhh and uh (.) what kind of work do you usually do at
124 this job that is (.) what is your occupation? .hhh
125 [and] I think- {q25C}

Recall that the item on the computer screen reads, "Is this business or organization mainly manufacturing, retail trade, wholesale trade, or something else?" At lines 118-119 in Segment 4, the interviewer modifies the end of the item from "...or something else?" to "...or would you consider that something else?" The question is intended to get the respondent to choose one of the four categories, but this modification results in *two* questions being asked. The initial question presents a choice of categories to the respondent, while the second is formatted for a "yes-no" answer. While the modification is slight, it is interactionally significant. The interviewer has shaped the overall item in a way that draws on the conversational preference for contiguity and for agreement (Sacks, 1987). With two questions

in a single turn of talk, the preference for contiguity obliges a respondent to answer the second question first. Here, when the interviewer changes "or something else?" in the standardized question to "or would you consider...", she has restructured the item to elicit an answer to this question immediately.¹⁰ The preference for agreement involves formatting the question to indicate that the speaker expects a particular answer. In Segment 4, even as the interviewer employs the "something else" category, her preface ("would you consider that..."), indicates that she expects the respondent to confirm the category as the correct answer. The preface also clarifies that "something else" is a category, so that the phrase is less likely to be interpreted as it was in Segment 2. The respondent then gives the preferred answer without hesitation, producing an agreeing answer (line 120) that is a codable category.

Of course, the previous interaction suggests that the question modification is itself occasioned, because the interviewer has learned that the respondent works at a university and knows that a university is to be classified as "something else." Therefore, the interviewer's understanding of information already supplied by the respondent and her training about proper coding may lead her to hypothesize an answer for the respondent as she does here (Houtkoop, 1991). Following the respondent's confirmation (line 120), the interviewer comments on the answer, laughingly affirming the respondent's answer in a way that exhibits her prior knowledge. The respondent joins the laughter (line 122).

In some--possibly most--cases, then, the interviewer has already heard enough about the respondent's job by the time they reach question 25B-2 to infer the answer, and the

¹⁰Sacks (1987) shows how the recipient of two questions answers the second question first and the first question second. Here, had the answer to "...or would you consider that something else?" been negative, the preference for contiguity implies that the respondent would have said "No," and then tried to choose one of the prior categories. Because the answer is affirmative here, however, the first question need not be answered.

interviewer may simply verify this prior inference. In our next excerpt, the interviewer does so in a way that redesigns the question (see lines 179-181 below) more extensively than it was in Segment 4:

Segment 5

Interview 011c, Version C

168 MR: Children's Hospital
169 (6.8)
170 IV: What kind of business or industry is this {q25B}
171 (1.2)
172 MR: It's a It's a hospital eh heh heh=
173 IV: =uhkay I have to ask the questions as [they] come up on=
174 MR: [()]
175 IV: =the screen
176 MR: Tha(h)t's fine.
177 IV: Uhkay:
178 (2.6)
179 IV: A:nd so this business or organization would not be
180 manufacture retail trade wholesale trade it would be
181 something else? {q25B-2}
182 MR: Yeah °sompin else°
183 IV: .hhhh And what kinda work does she usually do at this
184 job that is what is her occupation {q25C}

Prior to the focal question, the interviewer had asked what kind of business or industry the respondent's place of work ("Children's Hospital," line 168) is, and the respondent reiterated her answer and laughed (line 172). As Jefferson (1979) argues, laughter that ends an utterance invites the recipient of the laugh to laugh in return. However, the interviewer here declines that invitation, and instead seriously pursues the topic, explaining that she must read the questions as they appear on the screen (lines 173-175). As he acknowledges this, the respondent again laughs (line 176). The placement of the laughter may suggest to the interviewer the reason her questions amuse the respondent. In lines 179-181, the redesign of question 25B-2 may display the interviewer's analysis of the humorous response as being due to the obviousness of the questions. That is, she formats the question in a way that proposes its answer, incorporates her prior knowledge of the respondent's work setting, and requires only agreement from the respondent (line 182). This redesign of the question as a

verification is more extensive than that in Segment 4 (and contradicts the interviewer's own claims at lines 173-174, although the respondent would not know this). By presenting "something else" as a candidate answer, this redesign exhibits that "something else" is a category rather than a request to categorize. Therefore, although the respondent does "answer" the question (line 182), the *interviewer's* understanding of both the question and information already provided by the respondent clearly play a central role in his "comprehension" and answering of the question.

In Segments 4 and 5, the interviewer redesigns the question in a way (via the preference for agreement) that elicits a particular categorical answer from the respondent. Nevertheless, the other possible categories (or most of them) are still visible in the questioning of the interviewer. In our next segment, the interviewer redesigns the question to present only one category to the respondent.

Segment 6

Interview 024c, Version D

139 MR: Jack's (.) Refrigeration
140 (5.2) ((typing))
141 IV: .hh What kind of business or industry is this? {q25B-1}
142 (0.6)
143 MR: Uh::: 's a refrigeration (.) company
144 (1.6)
145 IV: .hh Would that be for retail sale wholesale or
146 manufacturing?
147 (0.8)
148 MR: Uh::: retail
149 (4.0) ((typing))
150 IV: And (.) what particular products do they sell would that
151 be a refrigerator?
152 MR: Uh: n- air conditioning (.) Uh
153 (1.5)
154 MR: and refrigeration
155 (0.7)
156 MR: repair products
157 (13.5) ((typing))
158 IV: .hh Alright and your believe you said this (in-) uh (.)
159 business organization was mainly b- retail trade is that
160 correct? {q25B-2}
161 (1.2)
162 MR: Uh retail and service
163 (0.7)
164 IV: Al[righ-]
165 MR: [But (.)] retail fitting in with the parts and
166 equipment that we sell yes

167 (0.9)
168 IV: Alright (4.0) .hh What kind of work do you usually do at
169 this job that is what is your occupation? {q25C}

After probing the respondent to determine the type of business or industry for which he works (lines 141-158), the interviewer modifies question 25B-2 to take this information into account. The question at lines 158-160 seeks and prefers confirmation from the respondent that the business is "retail trade." The respondent first hesitates (line 161) and then suggests that two categories may be relevant, retail and service (line 162).¹¹ After the interviewer's brief silence, which the respondent may take as implying disagreement (Pomerantz, 1984), the interviewer starts to receipt the respondent's answer (line 164), and the respondent starts an utterance in overlap (line 165). Because it is marked as a contrast ("But...") and reasserts and justifies the "retail" category, the utterance can be heard as a stronger alignment with the interviewer's original proposal. The interviewer receipts this utterance with "Alright" at line 168 and proceeds to the next question

In this segment the interviewer omits any mention of the other categories in question 25B-2. Furthermore, in fashioning an answer for the respondent to confirm, the interviewer virtually appropriates from the respondent's cognitive realm certain decisions about relevant and possible answers. Still, the interviewer does produce a "question" for the respondent to "answer," and the respondent does so. The codable answer, then, can be seen as the respondent's. This is much less true in Segment 7, where the interviewer not only eliminates several answer categories but almost entirely appropriates the respondent's work of answering:

¹¹The category "service" industry was also referred to by the respondent in Segment 2. The category was not referred to in previous questions in the interview, but appears to be part of an extended native taxonomy of types of businesses that some respondents are familiar with. The interviewer in Segment 7 (below) seems to presume such knowledge.

Interview 014c, Version C

111 IV: Now I have a few questions about y- where you work what
 112 is the name of the company of which for which you work
 113 {q25A}
 114 (0.5)
 115 FR: Richard W. Barr (.) em dee
 116 (9.5)
 117 IV: .hh and uh he is a (.) what type of doctor is [he]
 118 FR: [fam]ily
 119 practice
 120 (8.0)
 121 IV: O::ka:y and he would de- uh
 122 (1.0)
 123 IV: (As) a service company okay {q25B-2} and what kind of work do you
 124 usually do there= {q25C}
 125 FR: =Secretary

Although the interviewer starts question 25B-2 (line 121), she quickly abandons it. But she still manages to suggest, in a very compact way, the three-part question-answer-receipt structure described earlier. The question is indicated by "and he would de- uh" (line 121), the answer by "(As) as service company," and the receipt and beginning of a new question by "okay" (line 123). The interviewer presumably records "something else" as the answer. At first glance, the appearance of the phrase "service company" is surprising—it is not a codable category, and we saw it rejected as a candidate answer by the interviewer in Segment 2. But here the phrase announces the interviewer's understanding of the type of company the respondent works for and gives the respondent at least some opportunity to object to associating "Richard W. Barr, M.D. " and "service company." The announcement thus constitutes a minimal "verification" of the answer to question 25B-2, and might almost permit the ultimate answer to be seen as the respondent's own. The interviewer presumably makes the translation from "service company" to "something else" when she records the answer. Note that if the interviewer had used the codable category "something else" in her utterance at line 123, both the announcement and any subsequent acceptance by the respondent might have been less informative than the actual sequence, and might have provided less justification for regarding the answer as the respondent's own. (Such an utterance might also have led the respondent to ask for clarification, and thus have used

some of the time a verification can save.) The interviewer appears to be using an extended taxonomy like that referred to by the respondents in Segments 2 and 6 to construct a verification that, at the least, skirts the edge of acceptability under the rules of standardized interviewing. In this example, the interviewer substitutes her understanding of the question and knowledge of the respondent's biography for the respondent's own cognitive processing *and* answering.

Conclusion

This analysis shows how joint cognitive processing--the collaborative process of producing, understanding, and answering a question--occurs in the survey interview. As interviewers, through interaction, acquire information about respondents, see indications of uncertainty, and diagnose comprehension problems, they customize questions, engage in verification protocols, accept answers, omit questions, and the like. Given the variety of ways in which the interviewer's understanding may shape an interaction, it seems that in many cases the interviewer performs the work of interpreting the question--and even that of mapping the respondent's answer onto a response category. This work by the interviewer draws on her implicit native or folk models of how to diagnose problems in understanding, offer help, and negotiate clarity sufficient for the purposes at hand. For example, the redesign "or would you consider that something else" in Segment 4 projects a cognitive difficulty that the respondent's biography to that point in the interview makes potentially relevant and neatly fashions a preemptory clarification of the potential ambiguity of "something else."

The "reporting" sequences produced by some of these respondents play an important role in this process. Behavior coding of standardized interviews shows that respondents do not often explicitly request clarification of a question. For example, in a recent study that

coded behaviors in 60 interviews, the mean percentage of administrations in which the respondent requested clarification, computed across 60 questions, was 10% (Okensberg, Cannell, and Kalton 1991, p. 354). In only one of the six nonparadigmatic cases examined here does the respondent produce a strong solicitation for help from the interviewer, and even that solicitation is indirect (Segment 2, "I don't know what you'd (.) classify it"). "Reporting" potentially relevant information may be more common than direct requests as a method for soliciting clarification (see Schaeffer et al., 1993). Recognizing the role of this activity of respondents is important in at least two ways: Questions that frequently elicit such reporting may require redesign. In addition, because it is typically the job of the speaker--in this case the interviewer--to diagnose and correct (or repair) misunderstandings by the hearer (see Schegloff, 1991 and 1992), interviewers may need further training in interpreting and responding to such reports within the constraints of standardization.

Our analysis also raises more general issues. The traditional approach to cognitive processing has been individualistic and psychologistic. Consequently, when there are departures from the paradigmatic question-answer sequence, researchers are tempted to see these departures as "deviations" that index respondent's own problems in cognition. Our interactional analysis suggests a different approach. In most situations, even when interviewers attempt to be standardized, language is flexible, rather than rigid. And interactants have available to them resources in the interactional substrate that they readily use to negotiate the clarity they need for the purpose at hand (see, for example, Schegloff, 1991, p. 155). Thus is it not surprising that the interviews we analyzed include fewer paradigmatic than deviant enactments of question 25B-2 and that the interviewer plays a prominent role in deviations from the paradigm. Our analysis of these deviant instances suggests that seeing the point of a question is, *in the first place*, an interactional accomplishment: In the face of anticipated and actual problems, participants regularly resort

to orderly activities of heightened co-involvement in which the interviewer's contributions to the respondent's answer become intensified.

To be technically precise, in Segment 2, we see a respondent who apparently takes "something else" in Question 25B-2 as a request for further categorization rather than as a category. When the interviewer does not accept the respondent's answer, the respondent solicits the interviewer's help in obtaining one. In Segment 3, the respondent displays uncertainty in answering the question, yet reports information that allows the interviewer to gather the upshot for purposes of coding an answer. An interviewer can also offer help without being invited. Moreover, as Segments 4, 5, 6, and 7 show, the interviewer can do this more or less strongly. In Segment 4, the interviewer redesigns the latter part of 25B-2 to prefer agreement with the "something else" category, while in Segment 5, the interviewer modifies the entire format of 25B-2 to propose "something else" as the correct answer. In Segment 6, the interviewer eliminates certain categories from her question, whereas in Segment 7, the interviewer eliminates all codable categories from the question and then answers for the recipient, eviscerating the respondent's cognitive contribution almost entirely. Accordingly, we have suggested that the interviewer can be invited to participate or can offer to participate in answering a question, and hence make some degree of interactive contribution to what is usually seen as a respondent's own or sole efforts at cognitive processing. That this occurs attests to the strength of the interactional substrate and the orderly, socially organized skills and activities of which it consists.

If there is a socially organized tendency to construct answers interactively, departures from the *paradigm* are nevertheless *prototypical*. Indeed, we would argue that the paradigmatic question-answer sequence--the simple version of interviewer asking and respondent answering in an immediately codable way--is itself a "deviation." Although respondents may be engaging in an individualistic form of cognitive processing in

paradigmatic sequences, such sequences are a devolution from interactional structures to which participants resort at the first indication of trouble. This view of what is prototypical implies a nontraditional approach to question design. Questionnaire writers usually seek to avoid or to *minimize* disorderly departures from the paradigmatic question-answer sequence from the outset. This is the approach taken, for example, by versions of behavior coding that rely only on the behavior codes themselves to evaluate questions (e.g., Oksenberg, Cannell, and Kalton, 1991). But it may be more effective to begin with the prototype--i.e., with actual, plainly collaborative (including interviewer-dominated), orderly episodes of asking and answering questions. Then the problem would be to *maximize* deviation from the prototype--i.e., to streamline it--in order to obtain more instances of the paradigm.

As just one instance, reconsider how, in Segment 2, the respondent had difficulty with interpreting the status of "something else." We argued that its placement in a particular sequential context led to the respondent's hearing it as a request to categorize rather than as a category to choose. After offering an inappropriate answer, and after hearing the interviewer's rejection, the respondent then solicited and obtained the interviewer's help in constructing the answer. All of these features of the episode attest to ordinary, organized--prototypical--practices of the interactional substrate. Furthermore, the specific actions of the respondent and interviewer locate the problem, the conditions under which it appears to be a problem, and suggest possible solutions: Changing the sequential context of "something else" in a new version of question 25B-2 could make the prototypical practices of the participants unnecessary and thereby enhance the probability that respondents would produce the simpler paradigmatic question-answer sequence. Although this particular problem is a relatively simple one, characterizations of more complex problems and their solutions can be similarly based on an approach that relates cognitive processing to interactional sequences and activities.

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**Center for Demography & Ecology
University of Wisconsin
1180 Observatory Drive, Rm. 4412
Madison WI 53706-1393
U.S.A.
608/262-2182
FAX 608/262-8400**